

Prof. Edmond Béraneck; Schweizerische Naturforschende Gesellschaft, Dr. P. Sarasin.

Africa.—University of the Cape of Good Hope; South African College, Prof. H. H. W. Pearson; Grahamstown, Rhodes University College, Bouchier F. Hawkesley; Transvaal University College, Sir Richard Solomon, K.C., K.C.B., K.C.M.G.; Geological Society of South Africa, Prof. A. C. Seward, F.R.S.

Australia.—Adelaide University, Prof. W. H. Bragg, F.R.S.; University of Tasmania, J. Sprent; Royal Society of Tasmania, the Hon. J. McCall; Melbourne University, Dr. C. J. Martin, F.R.S.; Royal Society of Victoria, Prof. A. Dendy, F.R.S.; Sydney University and Royal Society of New South Wales, Prof. A. Liversidge, F.R.S.

Canada.—University of New Brunswick, Dr. C. C. Jones; Nova Scotian Institute of Science, Dr. H. S. Poole; Kingston, Queen's University, Prof. N. F. Dupuis; McGill University, Prof. E. W. MacBride; Royal Society of Canada, Prof. W. H. Ellis; Toronto University, Dr. R. A. Falconer and Prof. T. G. Brodie, F.R.S.; University of Manitoba, Prof. A. H. R. Buller.

India and Ceylon.—Allahabad University, Prof. A. W. Ward; Bombay University, Sir E. T. Candy; Calcutta University, Prof. S. Chandra Mahalanobis; Geological Survey of India, R. D. Oldham; Asiatic Society of Bengal, Lieut.-Colonel H. H. Godwin-Austen, F.R.S.; Punjab University, the Hon. Sir Lewis Tupper, K.C.I.E.; Madras University, Edgar Thurston; Peradeniya, Royal Botanic Gardens, Dr. J. C. Willis.

New Zealand.—Auckland University College, the Hon. W. Pember Reeves; Canterbury University College, Prof. E. Rutherford, F.R.S.; Philosophical Institute of Canterbury, T. V. Hodgson; New Zealand University, the Hon. Sir Robert Stout, K.C.M.G., Prof. Sale, and Prof. J. M. Brown; Wellington, Victoria, University College, H. D. Bell.

Straits Settlements.—Royal Asiatic Society (Straits Branch), J. B. Carruthers.

In addition to these representatives of institutions abroad, delegates were appointed by our own universities, university colleges, and scientific societies to take part in the celebration, and many other distinguished guests were present. The invitations to men of science were, except in a few cases, confined to naturalists, the committee having decided not to invite representatives of the physical sciences as such. Had it not been necessary, on account of space, to make this limitation, there is no doubt the celebration would have been even more remarkable in character than it was. The spirit of Darwin is the spirit of modern science, and every investigator who has been inspired by it would have welcomed an opportunity to assemble with the object of commemorating the greatness of the man and his work. No more brilliant assembly of representatives of the biological sciences throughout the world could, however, have been brought together than that which met on Tuesday at the opening of the celebration. The committee, and particularly the honorary secretaries, Prof. A. C. Seward and Mr. J. W. Clark, are to be congratulated upon the plan of the celebration, and the very successful way in which it has been carried out. Not for many years can Cambridge be the focus of so many investigators of animate nature from far and near as it has been this week. The celebration is of great historic significance, and will long be remembered as a worthy expression of the high estimation in which Charles Darwin's memory is held throughout the scientific world.

NOTES.

ON June 28, 29, and possibly June 30, the third meeting of the Solar Commission of the International Meteorological Committee will be held, under the presidency of Sir Norman Lockyer, K.C.B. The Royal Society has placed a room at the service of the commission, and the

meetings will commence at 11 a.m. each day. The following members have notified their intention of being present:—M. A. Angot (France), Prof. H. Birkeland (Norway), Prof. E. von Everdingen (Holland), Sir Norman Lockyer (Great Britain), Dr. W. J. S. Lockyer (Great Britain), Captain H. G. Lyons (Egypt), M. E. Marchand (France), Prof. H. Mohn (Norway), Dr. W. N. Shaw (Great Britain), M. A. Silvano (Brazil), and M. Teisserenc de Bort (France). This commission, it may be remembered, was originated by the International Meteorological Committee at the meeting in Southport in 1903, when Dr. W. N. Shaw proposed that a commission should be appointed to review and discuss meteorological observations from the point of view of their connection with solar physics. Dr. Shaw's motion was adopted, and Sir Norman Lockyer, Dr. Shaw, Prof. Pernter, and M. Angot were elected to serve on this commission, with power to add to their number and to elect their officers. Since then two meetings have been held, one at Cambridge in 1904 and the other at Innsbruck in 1905, with Sir Norman Lockyer as president and the late Sir John Eliot as secretary. The forthcoming and third meeting of the commission will be devoted chiefly, among other items, to the actions taken with regard to previous resolutions concerning the collection and publication of meteorological and solar data, and also to an important statement submitted by Dr. Shaw in relation to the selection of stations from ten-degree square areas.

Of the many scientific organisations, few have made more rapid progress than the Association of Economic Biologists. Founded in November, 1904, it has already held conferences in Birmingham, Liverpool, London, Edinburgh, and Cambridge, and on July 13, 14, and 15 it will meet at Oxford. According to the programme, the annual general meeting will be opened by the president, Dr. A. E. Shipley, F.R.S., on July 13, with an address on some diseases of fish and birds associated with the presence of parasites. The programme is a lengthy and interesting one. Prof. G. H. F. Nuttall, F.R.S., and Dr. Hadwen will read a communication on the successful curative treatment of piroplasmosis, to be followed by others by Prof. E. B. Poulton, F.R.S., on predaceous insects and their prey, and Prof. W. Somerville, on injurious fungi. "The Winter Breeding of the House-fly" is the title of a paper by Mr. F. P. Jepson; Mr. A. D. Darbishire will contribute an important paper on the application of recent discoveries in heredity to economic problems, and Dr. S. A. Neave on the distribution of *Glossina palpalis* and sleeping sickness. Other communications will be made by Messrs. W. E. Collinge, A. J. Grove, C. Gordon Hewitt, C. H. Hooper, R. S. MacDougall, G. W. Smith, and C. Warburton. On the afternoon of Wednesday, July 14, Prof. Somerville and Mr. G. H. Grosvenor will lead an excursion to Bagley Wood. Further particulars of the meeting may be obtained from Mr. Walter E. Collinge, Uffington, Berkhamsted.

THE annual general meeting of the Research Defence Society will be held at the Royal Society of Medicine, 20 Hanover Square, W., on Friday, June 25, at five o'clock. The Earl of Cromer, president of the society, will take the chair. Other speakers will be Sir James Dewar, Sir A. Conan Doyle, the Hon. Walter Guinness, and Prof. Starling.

THE sixth International Congress of Psychology will be held in Geneva on August 3-7. M. Flournoy is to be the president of the congress, and the general secretary is Dr. E. Claparède, 11 Avenue de Champel, Geneva.

THE council of the Royal Society of Arts, with the approval of the Prince of Wales, president, has awarded the Albert medal of the society for the current year to Sir Andrew Noble, K.C.B., F.R.S., "in recognition of his long-continued and valuable researches into the nature and action of explosives, which have resulted in the great development and improvement of modern ordnance."

THE council of the Royal Society has awarded the Mackinnon studentships for the year 1909 as follows:—one in physics to Mr. R. D. Kleeman, of Emmanuel College, Cambridge, for the continuation of his researches on radio-activity, which he proposes to conduct at the universities of Cambridge, Leeds, and Manchester; the other, in biology, has been renewed for a second year to Mr. D. Thoday, of Trinity College, Cambridge, for research into the physiological conditions of starvation in plants and its relation to the responsiveness of protoplasm to stimulation, especially to stimuli affecting respiration.

WE regret to see the announcement of the death of Dr. G. F. Deacon, member of the council of the Institution of Civil Engineers, and president of the engineering section of the British Association in 1897.

DR. W. STIRLING, professor of physiology in the University of Manchester, has been elected a foreign corresponding member of the Turin Royal Academy of Medicine.

IT is announced that Mr. E. H. Shackleton has been elected a Younger Brother of Trinity House, with the approval of the Prince of Wales, who is the master of this corporation. This is the second time only in the history of Trinity House that this honour has been conferred by the master.

M. J. VALLOT has been elected by the Société des Observatoires du Mont Blanc director of the observatory founded by the late M. Janssen, so that he is now director of two observatories on Mont Blanc. He has decided to present to the society the observatory founded by himself. Men of science anxious to carry out researches in the Mont Blanc meteorological observatories are requested to communicate either with the general secretary of the society in Paris, or with M. Vallot at Chamonix during the summer, and at 5 rue François Aune, Nice, or in Paris, during the winter. Publications are invited towards the library in connection with the observatories, and may be sent to M. Vallot at Nice.

THE Institute of France has awarded the Osiris prize, of the value of 4000*l.*, to M. Louis Blériot and M. Gabriel Voisin, for their experiments and achievements in aerial navigation. The prize is awarded every three years for the most remarkable contribution to the cause of human progress during that period.

THE first annual dinner of the Society of Tropical Medicine and Hygiene was held on June 18. Colonel Seeley, in proposing the toast "Success to the Society," said that from information he had obtained at the Colonial Office it appeared that half a million people have died of sleeping sickness alone in Uganda, but, owing to the discovery of the method by which it is propagated, the ravages of that disease have been at least reduced to one-tenth of what they were formerly. Sir Alfred Jones, in supporting the toast, remarked that in Liverpool 100,000*l.* has been spent on the work and 28,000*l.* in sending out expeditions. Sir Rubert Boyce, who followed, pointed out that yellow fever is practically a disease of the past in the West Indian group. In the Isthmian Canal zone, in

the time of M. de Lesseps, 48,000 men employed on the canal works died, but during the last three years there has not been a single case of yellow fever in that zone. Prof. Ronald Ross, C.B., F.R.S., who occupied the chair, responded, and said that the members of the society now number nearly 350, most of whom are doing their duty in the tropics. This country has, he continued, led the way in research in tropical medicine, and he expressed the hope that it will now lead the way in the practical application of the researches.

THE May number of the *National Geographic Magazine* contains an article by Mr. G. Shiras, illustrated with a large number of reproductions from the photographs of bird-life by Mr. F. M. Chapman which originally appeared in his "Camps and Cruises of an Ornithologist." Among the most striking photographs are those of the great colonies of flamingoes in the Bahamas. Specially interesting are Mr. Chapman's observations on the manner in which young flamingoes feed. For the first three weeks, during which the beak is straight, they pick up their food in the normal manner. After this the beak begins to bend, and feeding is effected by turning the end upside down and scooping up the nutriment. Unlike most birds, flamingoes have the upper half of the beak movable, and by moving this rapidly the mud and water taken into the mouth are strained off, leaving the small bivalves on which these birds feed.

SUBJECTS connected with evolution continue to occupy a prominent place in the *American Naturalist*, the contents of the June number including an article on heredity and variation in the simplest organisms, by Prof. H. S. Jennings, and a second, by Dr. J. A. Harris, on variation in the number of seeds in the pods of the broom (*Cytisus scoparius*). In the former of these the author points out that low unicellular organisms, such as Paramecium, are divisible into races differing by minute but constant features. In each of these races great individual variation in the matter of size is noticeable, but such differences are not inherited. The fundamental constitution of each is almost unaffected by external influences, observations extending over hundreds of generations of thousands of individuals of Paramecium revealing scarcely a single instance of such a change. Systematic and continued selection is without effect in a pure race, and in a mixture of races its effect consists in isolating the existing races, and not in producing anything new.

IN continuation and amplification of the study by Mr. W. C. Hossack of the rats of Calcutta, Captain R. E. Lloyd has undertaken an elaborate investigation into the racial and specific characters of those of India generally, the results of which are published in vol. iii., part i., of the Records of the Indian Museum. The investigation includes, not only the brown and the black rat and their local forms, but likewise *Mus mettada* and its allies, together with the various species formerly included in the genus *Nesocia*, but now split up into three generic groups. The great feature of the investigation is the enormously large series of specimens of the various forms which have passed through the author's hands, and have furnished materials for elaborate tables of measurements. One result of these extensive comparisons has been to raise in the author's mind grave doubts as to the validity of certain so-called species which have been described of late years. Captain Lloyd is also doubtful as to the advisability of the above-mentioned splitting of the old genus *Nesocia*, the members of which, by the way, he designates as "mole-

rats," a name usually restricted to the representatives of the genus *Spalax*. A better title is bandicoot-rats, taken from the ordinary name of the largest species. Captain Lloyd's investigations were undertaken as supplemental to those dealing with rats and plague, and certain very interesting deductions are drawn in connection with this aspect of the investigation. It is shown, for instance, that the brown rat, the great disseminator of plague, is absent from Madras, the only Indian port at present free from plague, where its place in the sewers of the city is taken by the great bandicoot-rat. The inference from this feature in distribution is obvious, although in some degree discounted by the occurrence of plague in districts where the brown rat is rare or unknown.

FROM the report of the director for 1908, we learn that the aquarium of the New York Zoological Society is becoming more and more attractive as a place of popular resort, the number of visitors during the year under review being considerably more than two and a half millions, forming a daily average of nearly seven thousand. During 1908 a sea-water system was installed, with an underground reservoir capable of holding 100,000 gallons, and the result of this has rendered it possible to keep a number of marine animals never previously exhibited in the establishment. It is stated that the difficulties encountered in the heating of sea-water by means of iron and bronze heaters, which corrode and break down, have apparently been solved by the employment of a heavy coiled heater made of chemical lead, which has lasted much longer than others previously tried. No other aquarium has problems to contend with like those which have developed in New York, where sea-water is heated in winter for tropical species and fresh-water refrigerated in summer for northern forms. With warm and cold tanks of both fresh and salt water, there are four distinct water-systems in use. About 200 species of fishes are usually kept in the ninety-four glass-fronted tanks, including from 3000 to 4000 specimens of native marine and fresh-water species and tropical species from the Bermudas. These figures do not include the product of the fish-hatchery. The collection of invertebrates is at present limited to local marine forms. The large ponds contain seals, sea-lions, alligators, crocodiles, turtles, and sturgeons, while in the table tanks are usually shown about twenty species of fresh-water tortoises. During September the large central pond contained two porpoises, and a leathery turtle weighing 840 lb. Unfortunately, some of the lung-breathing marine animals are ill adapted to indoor life, and it may prove undesirable to repeat experiments with those affected by the warm air when the building is heated.

PROF. E. GAUPP, the eminent comparative anatomist of Freiburg, has turned aside, as so many past and present anatomists and physicians have done, to investigate the problem of man's right-handedness. His essay, in which he brings together the best that is known concerning the preeminence of the right hand, has just been published by Mr. Gustav Fischer, of Jena, as the first part of a "Sammlung anatomischer und physiologischer Vorträge und Aufsätze," edited by himself in conjunction with Prof. W. Nagel. He regards right-handedness as a human characteristic, and agrees with those who seek an explanation in the preponderance of the left hemisphere of the brain. This preponderance he thinks may be explained by the asymmetry of the blood-vessels and other organs of the body. The essay, while adding little that is new to the subject, is a clear and useful summary of its literature. English writers are very fully cited, with one notable

exception—no mention is made of Prof. Elliot Smith's paper, the most important that has yet appeared. Advocates of ambidexterity will be glad to learn that they have gained a supporter in the professor of comparative anatomy of Freiburg.

DR. MAX HARTMANN discusses the meaning of sexuality in relation to the formation of gametes in a very interesting little work ("Autogamie bei Protisten") published by Mr. G. Fischer, Jena, as a reprint from the well-known *Archiv. f. Protistenkunde*. The author briefly describes the various forms which the sexual elements assume, and points out the importance of paying due regard to the sexual fusion of very nearly related gametes. He gives a useful summary of the various forms of sexuality, and traces the gradual disappearance (apomixis) of the latter in extreme cases of parthenogenesis and apogamy. He regards these types as derived from originally differentiated sexual conditions, and supports his view by an interesting review of the protista regarded from this standpoint. Dr. Hartmann very rightly insists on the fact that the sexual process as it presents itself in the higher forms is not a simple function, urging that it includes several distinct processes. He disagrees with Hertwig's views, which would imply a mere restoration of a specific relation between nucleus and cytoplasm, and seems to consider that the essence of sexuality consists in the union of nuclei which have distinct properties, the one more especially related to trophic, the other to kinetic, functions. But he expresses himself with great reserve, and concludes by admitting that, while this conception of the dual nature of the sexual nuclei is a good working hypothesis, it is hardly likely to prove the master key to all the problems of sexuality and fertilisation.

A STRIKING array of new plants is presented by Dr. J. N. Rose in the sixth of his studies of Mexican and Central American plants, published as vol. xii., part vii., of the Contributions from the United States National Herbarium. A new species of *Dioon* with both kinds of cone, and an *Ephedra*, were collected in southern Mexico. Four species are added to the strange parasitic genus *Pilosyles*, making a total of eight American species; all have been found growing on leguminous plants, generally on species of *Parosela*. The Cactaceæ received special attention on collecting trips, and illustrations are given of *Echinocactus palmeri*, which has a stem 5 feet high; *Opuntia Lloydii*, an arboreal species; and a dwarf creeping plant, *Opuntia vilis*. The author proposes to split up the genus *Lopezia* with the formation of three new genera, *Pseudolopezia*, *Pelozia*, and *Jehlia*.

An ecological sketch of the Streletz steppe in the neighbourhood of Kursk is presented by Mr. W. Alechin in the botanical section (series iv., fasc. 1) of *Travaux de la Société des Naturalistes*, St. Petersburg. The area is described as a meadow steppe, in which bushes form the chief feature, while grasses are of subsidiary importance; plants of the composite family are in great abundance. Around the steppe are woods, consisting chiefly of oak trees. The author comes to the conclusion that it is part of an ancient and original steppe formation, and that the woods are innovations. The succeeding fascicle is assigned to a paper, by Mr. W. P. Sawitsch, on the lichen vegetation in the south-west portion of the government of St. Petersburg. A study of the factors regulating distribution points to the importance of light and shade and moisture conditions, combined with the physical nature of the substratum.

It will be readily understood that bacteria do not lend themselves to ordinary standards of classification. According to two systems adopted, they have been massed into certain main groups or have been arranged according to their reactions in a few standard media. Mr. C. E. A. Winslow contributes an article on the subject to the Bulletin of the Torrey Botanical Club (vol. xxxvi.), in which he advocates a statistical method derived from the analysis of quantitative measurements extending over a large series of cultures. The characters or properties employed for discrimination are first selected by means of a preliminary survey. A special point in the paper is the argument in favour of a classification based on physiological as opposed to morphological characters.

Two communications dealing with the flora of Prince Charles Foreland, Spitsbergen, are published in the Transactions and Proceedings of the Botanical Society of Edinburgh (vol. xxiii., part iv.). Mr. R. N. R. Brown deals with the flowering plants and ferns collected by Dr. W. S. Bruce on the island in the years 1906 and 1907. *Saxifraga oppositifolia* is the first plant to flower as soon as the snow disappears in June; in early September the autumn falls of snow begin and close over the flowers of *Cardamine pratensis*, *Saxifraga aizoides*, and other late bloomers. The genera *Saxifraga* and *Ranunculus* supply thirteen out of a total of fifty-five species. Gamopetalous plants are limited to two composites, a *Campanula* and a *Pedicularis*. The mosses and liverworts are described by Mr. J. Hagen. Owing to the short growing period, only one species, *Oncophorus Wahlenbergii*, was found in fruit, and three others bearing antheridia or archegonia.

REFERENCE has already been made in NATURE to the method brought forward by Prof. H. Molisch for using a warm-water bath as a means of forcing plants when in a dormant condition. In response to inquiries, the author has elaborated his paper for publication, with additional illustrations, as a separate pamphlet published by Mr. Gustav Fischer, Jena (price 1.20 marks). The method consists in plunging the plants, preferably inverted, so as to immerse the stems but not the roots, into a water bath maintained at a temperature ranging, according to the plant, from 15° C. to 30° C. After soaking in the bath for about ten to fifteen hours, the plants are placed in a warm, moist chamber, and eventually transferred to the greenhouse. Forsythia, Spiræas, Syringas, and other plants that are usually forced give good results. *Azalea mollis* and *Camellia japonica* did not respond to treatment, and there was no practical result in the case of *Narcissus* bulbs. The precise nature of the action has not been determined, although it is suggested that the stimulus may be compared with that produced by ether vapour.

THE ninth volume of the *Bulletin du Jardin impérial botanique*, St. Petersburg (parts i. to iii.), contains, amongst other papers, a preliminary communication by Mr. A. A. Elenkin on the plankton, mosses, and lichens in and around Lake Selguer, in the government of Tver. The more important algæ collected in the lake included species of *Anabæna*, *Ceratium hirudinella*, *Tabellaria fenestrata*, and *Staurostrum gracile*. Some rare lichens were found, notably *Rhizocarpon postumum* and *Acarospora oligospora* growing on rocks, and the type of a new genus, *Placynthiella arenicola*, gathered on sandy soil. A short notice is communicated by Mr. N. A. Busch of a botanical expedition in the Caucasian province of Kuban, when he determined the north-western limit of *Fagus orientalis* and the western limit of *Acer tataricum*.

IN the *Fortnightly Review* for June Mr. E. Clodd discusses the pre-animistic stages in savage religion. He finds these in the conception of the Algonquin Manatou, the Oki or Orenda of the Iroquois, and in the better-known Mana of the Melanesians, which last is defined by Dr. Codrington to mean a supernatural power or influence which operates to effect everything beyond the ordinary power of men, outside the common processes of nature. At the back of the barbaric mind Mr. Clodd finds that in the evolution of the idea of God the passage is made from a vague, inchoate Naturism to a definite, concrete Animism, which draws its support from divers causes, among which he groups "the Opinion of Ghosts, Ignorance of second causes, Devotion towards what men fear, and taking of things Casual for Prognostique"—to use the classification of the philosopher Hobbes. He does not go farther, as recent speculation is inclined to do, in tracing the origin of the savage conception of Deity to a primitive Monotheism, while Animism is held to explain only the dead material of savage religion—that which concerns the human, the natural, the world of the dead, animated nature, ancestor worship, and so on.

THE Huxley memorial lecture by Prof. W. Z. Ripley, on the subject of the European population of the United States, is published in the current number of the Journal of the Royal Anthropological Institute. He observes that, in contrast to the population of Europe, the white race in America is "artificial and exotic. It is as yet unrelated to its physical environment. A human phenomenon unique in the history of the world is the result." At present the information is too scanty to enable us to judge of the tremendous effects of the introduction into a new country of about twenty-five millions of immigrants since 1820. These hosts have been drawn, not only from the higher races, "but we have tapped the political sinks of Europe, and are now drawing large numbers of Greeks, Armenians, and Syrians." The primary question is whether these various racial groups are to coalesce to form a more or less uniform American type, or whether they are to maintain a separate existence as members of a single government. The process of fusion is aided by the mobility of the American population and by the inequality of sexes among the immigrants, some 70 per cent. of whom are males, a fact which encourages alliances between them and American women. On the other hand, there is considerable concentration among some of the foreign colonies. After an interesting discussion of the problems of race amalgamation, the lecturer points out that the "white man's burden" imposed upon the rulers of India and the Americans in relation to negroes and Filipinos is much less serious than that laid on the statesmen of Canada and the United States of maintaining amidst this engulfing flood of foreigners the ideals of Anglo-Saxon culture and civilisation.

IN an interesting paper entitled "Réflexions d'un Artiste sur les Dessins de la Caverne d'Altamira," M. Lotus Péralté reviews the artistic character of the wall paintings in this cave as described by MM. E. Cartailhac and H. Breuil. He dwells with enthusiasm on these admirable delineations of animal forms as contrasted with the infantile productions of the Hyperboreans, Australians, and Bushmen. The Magdaleneans who produced these drawings are, in his view, the successors of a long-established art school, the "ethnical débris" of a profoundly cultured race, of which the last vestiges disappeared before the inroad of the Neolithic people. The artistic capacity of this earlier race may be readily

admitted, but at present we have no materials to justify the conclusion that they represent a degradation of culture, even though the steps by which this artistic capacity was acquired may remain one of the unsolved problems of ethnology. The evidence of this "cultural break" between the art of the Palæolithic people and its comparative absence in the Neolithic people has been recently discussed by Mr. W. Johnson in his "Folk-memory, or the Continuity of British Archaeology," which offers as reasonable a solution of this tangled problem as is possible at present.

MR. I. M. CASANOWICZ, in the thirty-sixth volume of the Proceedings of the United States National Museum, gives an account of the collection of rosaries under his charge. It is rather disappointing in numbers and interest when compared with more than one collection in this country, containing only 105 examples, of which twenty-seven belong to the Roman Catholic Church. Strange to say, there is no example of a Brahmanical rosary, while those from Japan, Tibet, and China are of some importance. The rosary in its present form is believed to have started among the Hindus, from whom it was adopted by the Maháyāna, or northern and most advanced school of Buddhism. Apparently from them it was adopted by the Mohammedans, and some believe that it came to Europe with the returning Crusaders. Some rude mode of counting the repetitions of prayers is recorded by the historian Sozomen to have been in use in Egypt in the fifth century A.D., but the Roman Church attributes its introduction to St. Dominic (1170-1221). Mr. Casanowicz believes that, though the Buddhist and Mohammedan bead chaplets preceded the Christian in order of time, there is not necessarily a causal connection between them. In any case, both in Islam and the early Christian Church the primitive mode of counting the prayers was by means of pebbles or date-stones, and the idea of replacing these by beads threaded on a string may be due to imitation of the practices of eastern religions.

THE U.S. Weather Bureau has favoured us with specimen copies of its meteorological charts of the North Atlantic and North Pacific oceans for July, and seasonal chart for the South Atlantic for June to August, corresponding very closely to the pilot charts issued by the London and Hamburg offices, to which we have frequently referred. The Weather Bureau took over the control of meteorological work on the oceans from the Navy Department a few years ago, and now receives reports from more than 2000 observers on vessels of every nationality. From these reports it prepares daily synoptic charts for the purpose of tracing storm tracks, percentage of fogs, prevailing direction of wind, trade-wind limits, pressure and temperature. It is proposed to include a seasonal chart of the South Pacific Ocean in September next; no charge is made for any of these useful publications, which are of great benefit to the seafaring community.

IN the course of an extended investigation on the residual charges of condensers with dielectrics of various materials, Mr. C. L. B. Shuddemagen, of the Jeffers Physical Laboratory of Harvard University, has discovered a method of making condensers with pure paraffin wax instead of waxed paper. Such condensers, he finds, show no residual charge, and on this account are likely to be of great importance in future electrical work. In order to prepare the thin sheets of paraffin required, Mr. Shuddemagen dips a thin, smooth board which has been soaked in water for a few days, and is rinsed with water

immediately before use, into a bath of liquid paraffin wax. On withdrawing the board it is found to have on either side a thin sheet of paraffin, which is readily detached, and allowed to hang in the air to get rid of all moisture. The thickness of the sheet is determined by the temperature of the bath and of the board, and by the time the board is immersed but 0.5 millimetre has been found most suitable. Any irregularities in the surface of the sheet are smoothed with the blade of a safety razor before the tin foil is placed on the sheets. Mr. Shuddemagen's paper forms Memoir No. 18 of vol. xlv. of the Proceedings of the American Academy of Arts and Sciences.

OUR ASTRONOMICAL COLUMN.

DISCOVERY OF A COMET, 1909a.—A telegram from the Kiel Centralstelle announces the discovery of an eleventh-magnitude comet, by Mr. Daniel, at Princeton (N.J.) on June 15.

At 14h. 0m. (Princeton M.T.) on that date the position was R.A.=1h. 39.9m., dec.=28° 55' N., and the motion of the comet was recorded as northerly and rapid.

A second telegram states that this object was observed by M. Javelle at Nice on June 16, when at 13h. 13.3m. (Nice M.T.) the position was R.A.=1h. 41m. 54s., dec.=29° 58' 18" N.

Thus it appears that the comet is now in the constellation Triangulum, apparently travelling, in a direction a little east of north, towards Andromeda and Perseus; this position rises about four hours before the sun. It is interesting to remark that comet 1907d, subsequently a naked-eye object, was discovered by Mr. Daniel on June 14 (1907), and was then of the eleventh magnitude.

A set of elements and an ephemeris, computed by Prof. Kobold, are given in Circular No. 109 of the Centralstelle.

Ephemeris (12h. M.T. Berlin).

| 1909 | | Ephemera (12th, 14th, 17th, 21st, 24th, 26th, 28th, 30th) | | | | Bright- ness | |
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| | 26 | ... | 2 12.7 | ... | +42 53.0 | ... | 0.7 |
| | 30 | ... | 2 27.1 | ... | +47 4.7 | ... | 0.6 |
| July | 4 | ... | 2 42.7 | ... | +51 0.9 | ... | 0.5 |
| | 8 | ... | 2 59.4 | ... | +54 22.9 | ... | 0.4 |

Perihelion is given as June 3.

A supplement to *Astronomische Nachrichten*, No. 4331, informs us that this comet was discovered independently by M. Borrelly, at Marseilles, on June 14, 14h. 30m. (Marseilles M.T.). It should therefore be known as comet 1909a (Borrelly-Daniel).

ELEMENTS AND EPHEMERIS FOR WINNECKE'S COMET, 1909.—As Winnecke's comet is due at perihelion in October, Prof. Hillebrand has computed a set of elements and an ephemeris for this return, and publishes them in No. 4330 of the *Astronomische Nachrichten*.

The time of perihelion is given as 1909 October 4.0 (M.T. Berlin), and the ephemeris covers the period June 31 to October 12. During July the comet should apparently travel in a south-east direction through Leo nearly parallel to a line joining δ and β Leonis; on July 18 it should be about 1° south of the former, and on August 2 about 15' north of the latter, star. The position given for June 31 is α (app.)=10h. 32m. 46s., δ (app.)=24° 51.7' N.

THE RECENT LUNAR ECLIPSE, JUNE 3.—Owing to the persistent clouds, the total eclipse of the moon which took place on June 3-4 was unobservable in London, but that it was well observed in other localities is shown by the reports now published.

MM. Borrelly and Coggia made observations at Marseilles, the results of which are published in No. 23 (June 7) of the *Comptes rendus*.

The former noted the exceptional intensity of the penumbra at the beginning of the eclipse, and a seamy appearance of the umbra which gave the front line of the shadow a sinuous appearance. In the telescope the eclipsed moon appeared rose-coloured, but to the naked eye it was red; many of the lunar circles were visible despite the shadow.